

Background:

Nominee: Environmental Sustainability Team, Los Angeles Air Force Base

Name: Capt Benjamin Smalley

Title: Chief, Asset Management Flight

Employer: United States Air Force

Name: Elizabeth Farm

Title: Natural Resources Section Chief

Employer: Parsons

Name: Yong Park

Title: Senior Environmental Specialist

Employer: Parsons

Name: Jon Lutz

Title: Senior Environmental Specialist

Employer: GeoMarine Inc.

Name: Erin Sawyer

Title: Hazardous Materials Technician

Employer: GeoMarine Inc.

Name: Christopher Turley

Title: Rideshare Coordinator

Employer: Parsons

Position Description:

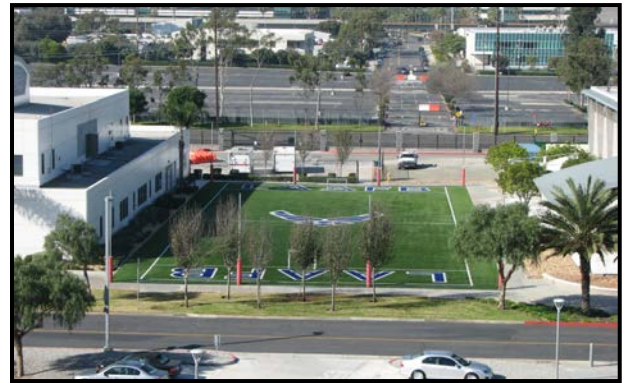
The 61st Civil Engineer and Logistics Squadron (61 CELS) at Los Angeles Air Force Base (LA AFB) is host to the best Environmental Sustainability team in the U.S. Air Force. The team is responsible for the installation's environmental compliance, pollution prevention, environmental restoration, and conservation. Specifically, the team maintains compliance with regulations pertaining to air quality, water quality, stormwater, and hazardous materials and waste. Additionally, the team manages compliance with regulations for lead and asbestos abatement and storage tank management, and adherence to National Environmental Protection Act requirements. Furthermore, the team manages LA AFB's solid waste, natural and cultural resources, recycling, and Rideshare programs, and pursues opportunities to reduce the installation's energy and water consumption demands. Finally, the Environmental Sustainability team is the installation's focal point for the Environmental Management System and is charged

with promoting sustainability, green procurement, and progress toward Executive Order goals through installation-wide education, training, and process improvement.

Material Substitution:

As part of the 2011 renovation of LA AFB's pool, the Environmental Sustainability team pushed to substitute traditional concrete for a 100% permeable paving product called EcoCrete. This product allows for a rainwater drainage rate of up to 4 inches per minute, well above average rainfall rates for Los Angeles. Through savvy material substitution, the team installed 162 square yards of EcoCrete, eliminating rainwater runoff and ensuring conservation of valuable water resources.

To reduce LA AFB's water consumption, the Environmental Sustainability team pushed the demolition of 38,000 cubic feet of grass and subsoil to install the 89×195-foot artificial turf athletic field now used as LA AFB's primary recreation area. The synthetic "Tiger Turf" system is constructed using a secondary backing made of renewable resources, and provides a pristine athletic area for physical training while saving 117,000 gallons of water annually. Furthermore, this material substitution eliminated \$47,000 in annual utility and maintenance fees.



The LA AFB Athletic Field provides a pristine 17,355 square foot recreation area for physical training while saving 117,000 gallons of water and \$47,000 annually

The team subscribes to the principle that outreach and education win compliance. In order to meet the greatest customer base, they purchased \$3,000 in 100% post-consumer recycled plastic tables and chairs that are utilized in the outdoor dining areas on the installation. Educational signs placed adjacent to the dining area explain the durability and advantages of post-consumer recycled products. This small investment provides tacit education to an estimated 500 lunchtime diners and installation visitors every day, and reinforces LA AFB's commitment to preferential purchasing of sustainable materials.

Process Modification and Improvement:

In early 2011, the Environmental Sustainability team identified the Work Request Review Board as an opportunity to increase sustainability considerations within the Civil Engineer organization. By adding a coordination block for our Environmental Sustainability team lead on the AF Form 332, *Base Civil Engineer Work Request*, we codified a process to ensure sustainability opportunities are considered in all construction and maintenance activities. Over the course of fiscal years 2011 and 2012, some 650 work orders have been evaluated for sustainability requirements, resulting in a life-cycle management-minded approach to over \$6.4 million in base infrastructure work.

Additionally, the team maintains primary responsibility for LA AFB's Environmental, Safety and Occupational Health (ESOH) compliance. The team proactively evaluated the internal Tier 1 ESOH compliance checklists to identify installation-specific vulnerabilities not captured in the boilerplate templates published by Headquarters Air Force. Sixty-five compliance vulnerabilities were identified during this review -- among them, the installation's swimming pool and gas station -- and new checklists were developed locally. Through the team's vigilant management, LA AFB continues to self-monitor our high-risk activities, safeguarding against potential fines of \$100,000 for a worst-case non-compliance event.

The Environmental Sustainability team targeted installation paper use and printing with the development of the LA AFB duplex printing policy. Piloted first within the 61st Air Base Group (61 ABG), this program is being expanded across the Space and Missile System Center's \$10 billion acquisitions program. The printing policy reduces base paper use by 40% and saved 61 ABG \$50,000 during its first year of implementation. Furthermore, the team worked with base contracting to formalize language in all contracts to require document deliverables be duplex printed, expanding the Air Force's commitment to sustainability to our business partners.

The team single-handedly closed seven ESOHCAMP findings in our air, storage tank, and wastewater programs through an improved records collection and management system. By training 30 maintenance technicians and utilizing a central digital repository, the LA AFB Environmental Sustainability team centralized management of monthly inspection logs. This process saves an estimated 120 hours per year by maintaining the records in one location for compliance checks, rather than requiring site visits to check logs.

Improved Material Management:

LA AFB's most notable material management success is the Secretary of the Air Force endorsed Electric Vehicle Initiative. LA AFB is the Federal government's test-bed to pilot a plug-in hybrid/electric vehicle fleet using "vehicle-to-grid" (V2G) technology. The V2G technology uses the vehicles' batteries as storage, moving power back and forth between parked vehicles and the local utility company. This initiative will reduce our overall fleet expenses while meeting mission capabilities and achieving our energy and environmental objectives.

The Environmental Sustainability team coordinates with 10 different agencies to trail-blaze implementation of this zero-emission initiative. Unlike commercial electric vehicle fleets, LA AFB's 43 vehicles will charge during off-peak hours and collectively contribute up to 500 kilowatts back to the grid during peak demand hours, while retaining the capability to serve the base's official government business needs.

Beyond high-visibility efforts like the EV Initiative, the Environmental Sustainability team leaves no stone unturned in their material management efforts. The team partnered with the Force Support Squadron to sell used kitchen grease for recycling rather than disposing of the product as Hazardous Waste. Despite only generating a nominal \$213, this process has eliminated 2.2 tons from the LA AFB waste stream.

California has the most stringent requirements to restrict products containing high amounts of volatile organic compounds (VOCs). The Environmental Sustainability team bears responsibility for environmental compliance in the work processes of 29 shops, and has made a concerted effort to eliminate all high-VOC products from the installation. Capitalizing on his in-depth knowledge, our Air Quality Manager conducts one-on-one training with shop foremen to identify environmentally acceptable alternatives to high-VOC products. This effort has resulted in LA AFB's 10,000 lbs quarterly HazMat inventory remaining high-VOC free.

Compliance with Executive Order 13423:

The Environmental Sustainability team has spent the past two years cultivating the installation's Environmental Management System (EMS), which provides the backbone of the base's Executive Order (EO) 13423 compliance efforts. After piloting the EMS within 61 ABG, the team expanded the EMS across the installation with 39 additional Unit Environmental Coordinator appointments, and authored the LA AFB EMS Manual. With an environmental point of contact in each unit on base, LA AFB successfully operationalizes compliance with EO 13423 for the 4,500 installation employees.

The team advanced the base's commitment to solar energy with the installation of a 320-kilowatt solar array across the rooftops of the three major facilities on base. Expanding on the previously installed 380-kilowatt array on our parking canopies, this \$1.5 million project generates enough power to offset the energy consumption of the base fitness center, reducing the total energy usage of LA AFB by 1%. Furthermore, the project saves the installation \$100,000 in annual utility costs.

Although LA AFB is the smallest energy user in Air Force Space Command, the Environmental Sustainability team continues to aggressively pursue energy reductions. In 2012, the team awarded two projects to replace over 11,000 32-watt fluorescent light bulbs with 28-watt fluorescent light bulbs containing 80% less mercury. This project reduced LA AFB's energy consumption by 45 kilowatts per year. The team also enabled the connection of three additional facilities to the base's Energy Management Control System, thereby right-sizing the heating and/or cooling demand of those buildings against their occupant loads. This effort saves \$39,000 per year, and reduces the base's energy use by 3.34 million British Thermal Units.

To reduce water consumption, the Environmental Sustainability team championed a project to install irrigation controls across LA AFB's 148-acre Fort MacArthur annex, which includes the base's family housing and historic parade field. The system regulates irrigation based on data received from ambient weather sensors, ensuring water is only expended on irrigation when necessary. This effort achieved an annual savings of 28 million gallons of water, and enabled LA AFB to meet its EO 13423 reduction goal seven years ahead of schedule!

With its small footprint, opportunities to reduce energy consumption at LA AFB are increasingly rare; however, the Environmental Sustainability team capitalized on fiscal year-end funding to replace 15 of the installation's heating, ventilation and air conditioning units and five air-cooled chillers. With more efficient technology and advanced controls, this project

eliminated a critical climate control vulnerability and is estimated to yield an annual savings of \$225,000 and 2 million kilowatt-hours -- more than 10% of the base's total energy consumption.

Finally, the Environmental Sustainability team provides dedicated commuter assistance to the 910 personnel enrolled in the installation's Rideshare Program. The Rideshare Office coordinates carpool partnerships, places personnel in one of 29 base vanpools, identifies accessible public transit options across the 1,433 square-mile Los Angeles area, and provides participants with vouchers from the Department of Transportation to subsidize the use of public transit. The LA AFB Rideshare Coordinator partners with six surrounding corporations including Northrop Grumman, Raytheon and Aerospace to increase community co-ridership. These efforts resulted in the distribution of \$1.8 million in transit vouchers in 2011 and 2012, the elimination of 33% of the vehicles being driven onto the installation every day, and secured compliance with strict California air quality management regulations.

Recycling Successes:

The greatest recent recycling success for LA AFB is the implementation of a basewide composting program. Identified as a "best practice" in our 2012 Environmental, Occupational Health and Safety Inspection, the composting program partners with AAFES, DeCA and the Force Support Squadron to collect food scraps from the Base Exchange, Commissary, Club, and all dining and food prep areas. Since its 2012 inception, the program has diverted 26.5 tons -- 46.4% of the installation's waste stream. Unique to LA AFB's composting program is its participation in the United States' first reclaimable anaerobic digester, a pilot technology that captures approximately 55% biofuel from organic waste. The Environmental Sustainability team is proud that our participation in this program supports technologies that will further develop a sustainable future.

To prevent electronic waste during computer technology upgrades, the team partnered with the installation logistics element to donate replaced computers to local schools rather than excessing them through the Defense Reutilization Marketing Office. In 2011 and 2012, LA AFB donated 578 computer items valued at over \$33,000 to 6 local schools, providing the optimal re-use of the installation's e-waste and providing learning tools for America's youth.

Finally, the Environmental Sustainability team took advantage of the local economy by implementing a battery recycling program at LA AFB. Previously, used batteries were disposed of as Hazardous Waste. Since the inception of the program in 2011, LA AFB has recycled 12,100 lbs of batteries; converting an expense into a \$4,600 profit for the installation's Qualified Recycling Program.

Green Procurement:

The Environmental Sustainability team identified the opportunity to enhance green procurement in LA AFB's construction program. To seize this opportunity, team authored a Green Product Identification Form, educated 21 project managers on the use of the form, and required the form be used in the installation's indefinite-delivery, indefinite-quantity

construction contract. Adoption of this process ensured green procurement requirements were observed in the execution of \$4.2 million in construction projects.

LA AFB's Natural Resource team set the example for green procurement by utilizing \$76,000 of the installation's Qualified Recycling Program fund to purchase 53 waste receptacles made from post-consumer plastic. These bins are staged in every break room, common area and dining area, feature three compartments for waste, recyclables, and compostables, and have been instrumental in the success of the base's new composting program.

To ensure compliance with the Resource Conservation and Recovery Act, the LA AFB Environmental Sustainability Team partners with local contracting to administer monthly Green Procurement training to all installation Government Purchase Card cardholders, resulting in over 298 personnel embracing the government's commitment to buy green in the execution of a \$8 million supply budget.

Education, Outreach and Partnering:

In addition to the lunch area tables and chairs discussed earlier, the LA AFB Environmental Sustainability team strives to find additional opportunities to win compliance through education. With events such as Bike to Work Day, Earth Day, Composting Day, and America Recycles Day, the Environmental Sustainability team keeps our 4,500 personnel mindful of the Air Force's commitment to sustainability. The team partners with 29 local vendors and non-profit organizations to showcase the latest in sustainable technology and motivate LA AFB personnel to take their part in greening the future.



Quarterly outreach events, such as America Recycles Day, invite community partners to showcase sustainable initiatives like the post-consumer recycled materials seen here.

The greatest partnering success for LA AFB's sustainable future brought solar arrays to the installation's privatized housing areas.

Working with our housing privatization partner, the Environmental Sustainability team identified key factors to coordinate the installation of a combined 800 kilowatt photovoltaic array across 207 homes. This effort will lock the LA AFB resident utility rate for the next twenty years at a competitive \$0.14 per kilowatt-hour and increases the security and predictability of our privatized housing partner's financial health, in turn providing better service to our residents.

Historically, LA AFB has struggled with its reliance on contracted employees because of the resultant higher-than-average employee turnover rate. To combat lapses in compliance education, the Environmental Sustainability team developed an online training video library to provide interim education for employees hired between annual offerings. Targeting the Hazardous Waste and Hazardous Materials programs first, the team taped 8 hours of training to mitigate Notices of Violation due to mismanagement of hazardous substances.

Reductions Achieved:

The Environmental Sustainability team explores every opportunity to reduce LA AFB's footprint and promote sustainability. In addition to the implementation of the composting program and reductions achieved toward EO 13423, the team also purged the installation's biggest wastestream through the diversion of 407 tons of green waste and the recycling of 261 tons of wooden pallets. These efforts eliminated 61.6% of LA AFB's total refuse in 2011 and 2012. Additionally, LA AFB also profits from used toner and scrap metal sales. In the past two years, the Environmental Sustainability team has arranged the sale of 31 tons of high-value waste, resulting in a profit of \$5,900 and eliminating 3% of the base wastestream.

One advantage unique to LA AFB is that 80% of the base populace is located in three primary facilities. The team capitalized on this high population density by executing a project to install 196 low-flow, dual-flush plumbing fixtures in the restrooms of these facilities. Not only do these fixtures educate users about water conservation by requiring a choice between a full-flush or half-flush, but the project saves 1.2 million gallons of water annually.

Master Planning and Green Buildings:

The Environmental Sustainability team won a major victory in championing a project to remove the installation's car wash facility. Not only did the project convert the dilapidated site to an open recreation area, but it eliminated a potential \$1.6 million liability.

To safeguard the entire LA AFB campus from unauthorized stormwater discharges, the team negotiated and managed a project to install 48 storm drain inserts across the installation. These inserts close-off the storm drains to provide a safety net in the event of an accidental discharge. With light rainfall and predictable weather in Los Angeles, the team is able to open the storm drains only during inclement weather, safeguarding the base against regulatory fines of up to \$24,000 per unauthorized discharge. This practice was identified as a "best practice" during a 2011 Environmental, Safety and Occupational Health inspection.

Despite its small size, LA AFB continues to capitalize on opportunities to reduce our footprint and associated environmental impact. By partnering with the base logistics and optimizing the warehouse shelving systems, two supply warehouses were consolidated into one, enabling our Environmental Sustainability team to eliminate 6,600 square feet of excess space, or roughly 0.5% of LA AFB's facility footprint.

Over the past two years, the Environmental Sustainability team took aggressive strides in implementing xeriscaping across LA AFB. Within this time frame, over 138,000 square feet of the base grounds were xeriscaped, reducing landscaping labor requirements, reliance on pesticides and fertilizers, and installation water consumption by 15%.



Xeriscaping outside the Base Exchange. Landscaping using native species has resulted in a 15% reduction in water use at LA AFB